

Work Order ID 107683

107683

Page 1

September-27-13 1:09:57 PM

Item ID: 646.3314

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Blade

Start Date: 9/27/13

Start Qty: 8.00

8

Cust Item ID:

Required Date: 9/27/13

Req'd Qty: 8.00

8

Customer:

Reference:

Approvals:

Process Plan: ML5

Date: 13-09-30

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
646.3300	N/C								
100	BAND SAW	0.00	MH	13/10/03		8	φ		
100									
Bandsaw	Memo	0.00							
Jeaspa Bandsaw	Cut Blank at 5.050"								
110	HAAS CNC VERTICAL MACHINING #1	0.00							
110									
HAAS-1	Memo	0.00							
HAAS CNC vertical machine #1	1-Machine per folio FB147								
	DWG REV: <u>N/C</u>								
	FOLIO REV: <u>AA</u>								

JFC 2013-10-05

8

φ

2- deburr and break all sharp edges except otherwise noted

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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Work Order ID 107683

September-27-13 1:09:57 PM

107683

Page 2

Item ID: 646.3314 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Blade
 Start Date: 9/27/13 Start Qty: 8.00 ***8*** Cust Item ID:
 Required Date: 9/27/13 Req'd Qty: 8.00 ***8*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00							
120			JFC	2013-10-05		8	0		
QC	Memo	0.00							
Quality Control									
130	QC8- Inspect parts - second check	0.00							
130			B.A	13/10/07		8	0		DAS 08 9-89
QC	Memo	0.00							
Quality Control									
140	Outsource process - Heat Treat	0.00							
140									
Outsource1	Memo	0.00							
Outsource process - Heat Treat	HEAT TREAT AS PER DWG, SEE NOTE #3								
	ISSUE P/O: 21635								

CL 13/10/09 (8)

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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PRIMER BATCH: 127401

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
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Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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Work Order ID 107683

107683

Page 4

September-27-13 1:09:57 PM

Item ID: 646.3314

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Blade

Start Date: 9/27/13

Start Qty: 8.00

8

Cust Item ID:

Required Date: 9/27/13

Req'd Qty: 8.00

8

Customer:

Reference:

Run Start

NR1

Stop

NR2

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

170

QC14- Inspect Spray Paint

0.00

170

QC

Memo

0.00

Quality Control

8

nwl 13.12.09

180

Identify as per dwg & Stock Location: *composite* 0.00

180

Packaging

Memo

0.00

Packaging

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

8

nwl 13.12.09

190

QC21- Final Inspection - Work Order Release

0.00

190

QC

Memo

0.00

Quality Control

13/12/11 DJ

pl 13-12-10

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
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Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

Picklist Print

September-27-13 1:09:57 PM

Page 1

Work Order ID: 107683

Parent Item: 646.3314

Parent Item Name: Blade

Start Date: 9/27/13

Required Date: 9/27/13

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP REV:A NEW ISSUE 12/11/07 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250 AISI A2 TOOL STEEL BAR, 0.500 X 1.250		Purchased	No			100	f	185.8930	0.421	3.5452632			

Location	Loc Qty	Loc Code
MAT009	185.8930001	
123250	0.0000001	
125350	0.5946	
M126166	61.5484	
M126438	123.75	

↓ 8.53 MH 13/10/03 ↓

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

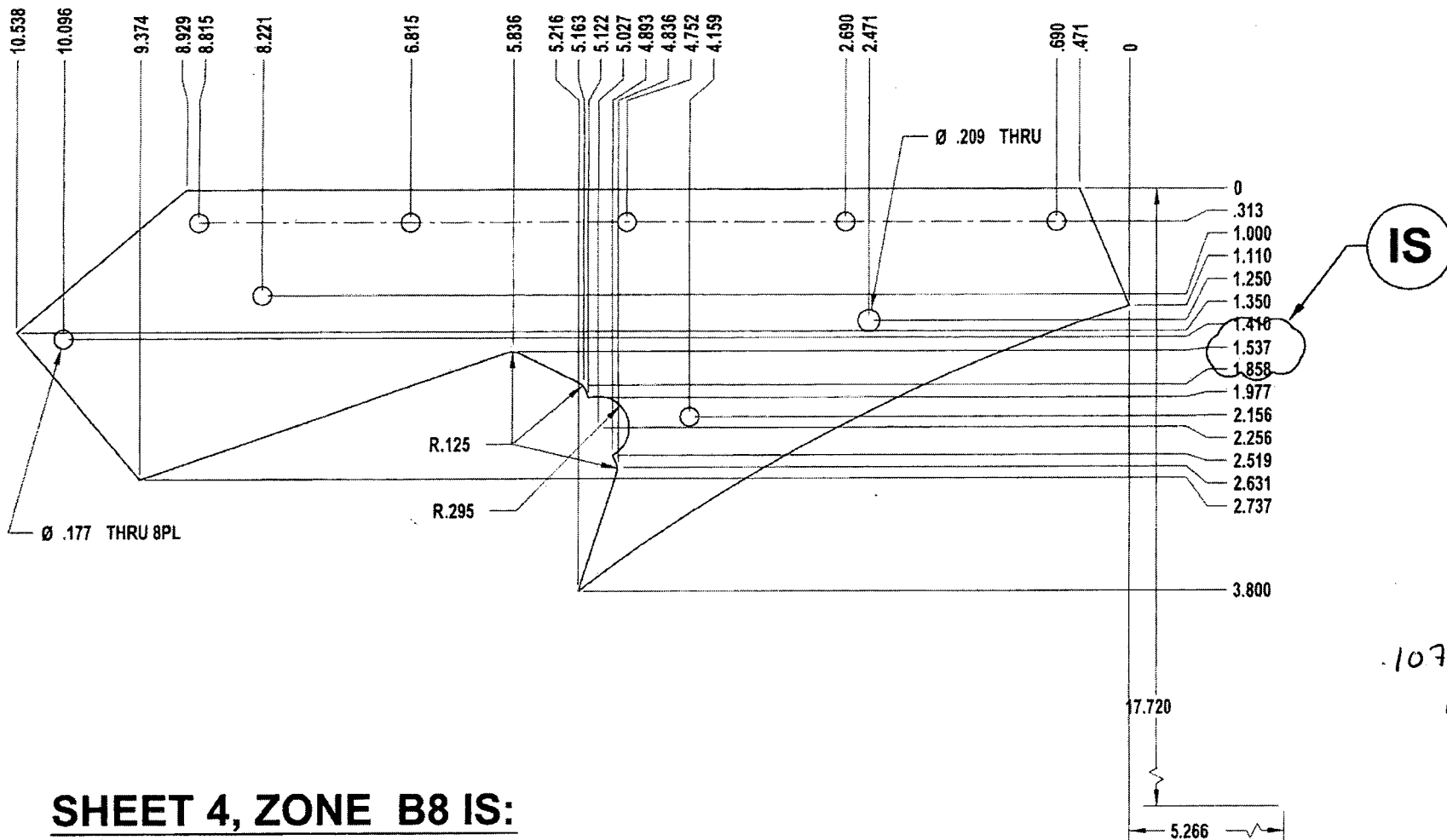
Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
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Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 03724				SHEET 1 OF 1	
	DWG NO. 646.3300	REV: N/C	PREPARED BY B. PETERS	DATE: 12/05/12	EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.	
	DWG TITLE: UPPER CUTTER ASSY					
	APPROVED BY: ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER		
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED ORDINATE DIMENSION.				ECR: D-12-025	



107683 MJS
13-09-30

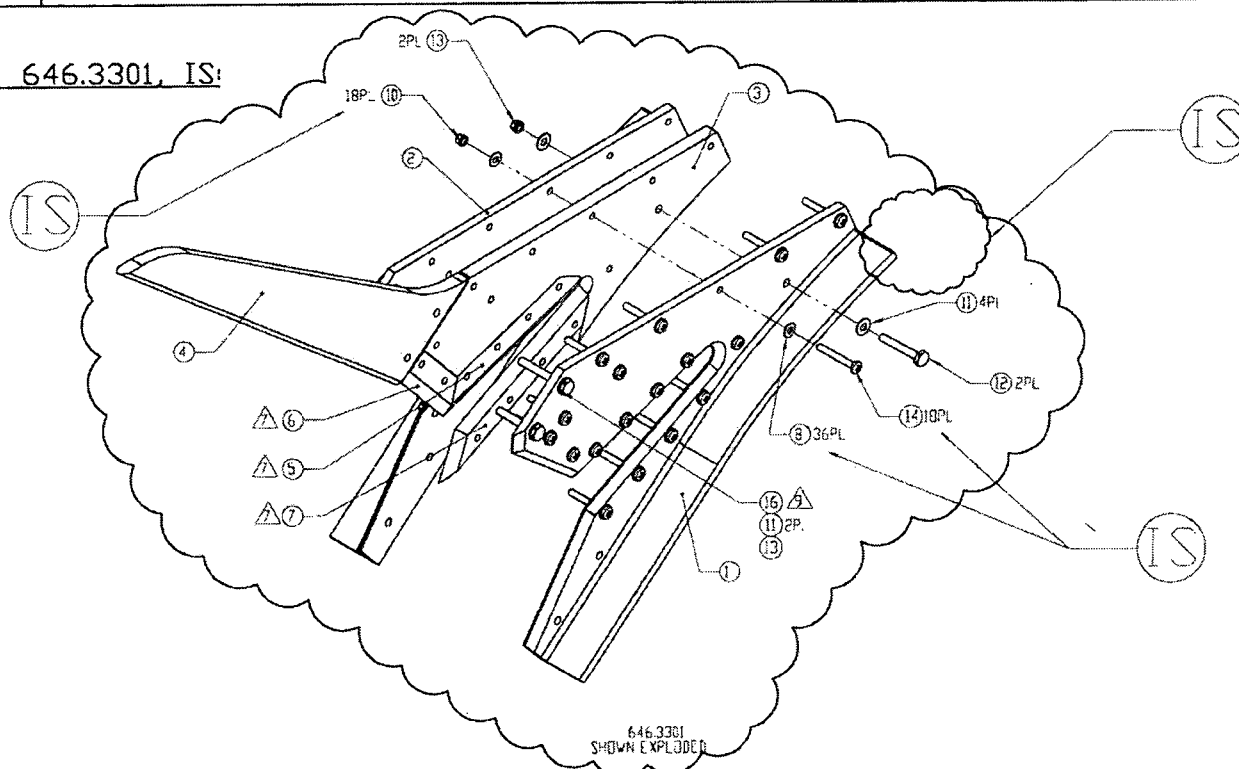
SHEET 4, ZONE B8 IS:

DOCUMENTS EFFECTED:	<input type="checkbox"/> RFMS <input type="checkbox"/> MDL <input type="checkbox"/> INSTALL INSTRUC <input type="checkbox"/> ICA <input type="checkbox"/> BQM	CHANGE CATEGORY <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR	DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
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107683

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO.		02196		SHEET 1 OF 2	
	DWG NO.	646.3300	REV/N/C	PREPARED BY	S. HUFF	DATE: 01/05/09
	EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.					
DWG TITLE: UPPER CUTTER ASSY						
APPROVED BY:	ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER		
REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS						
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE						

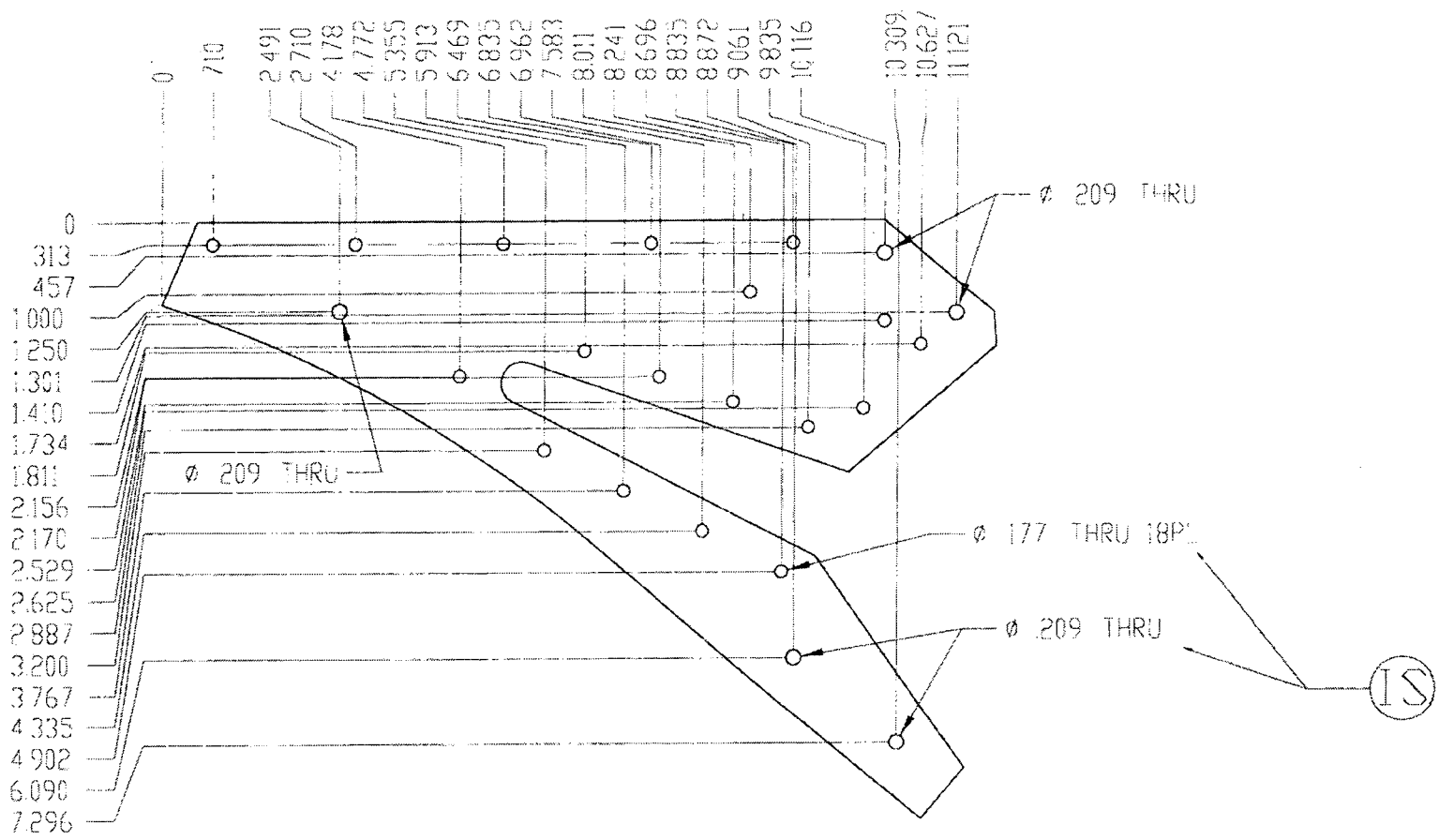
SHEET 1, VIEW 646.3301, IS:




14	R	601.2765	18	SCREW	MS27039-0819
10	R	601.1541	18	LOCKNUT	MS21042L08
9	D	601.2766	3	RIVET	MS20470AD5-18
8	R	601.2764	36	WASHER	NAS1149FN832P
			.3301		
F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:				<input type="checkbox"/> MDL <input checked="" type="checkbox"/> INSTALL INSTRUC <input checked="" type="checkbox"/> ICA <input type="checkbox"/> FMS <input checked="" type="checkbox"/> BOM	CHANGE CATEGORY <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR
				DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

107683

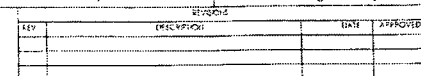
SHEET 3, SECTION VIEW A-A, IS:



SECTION A-A 

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

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THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

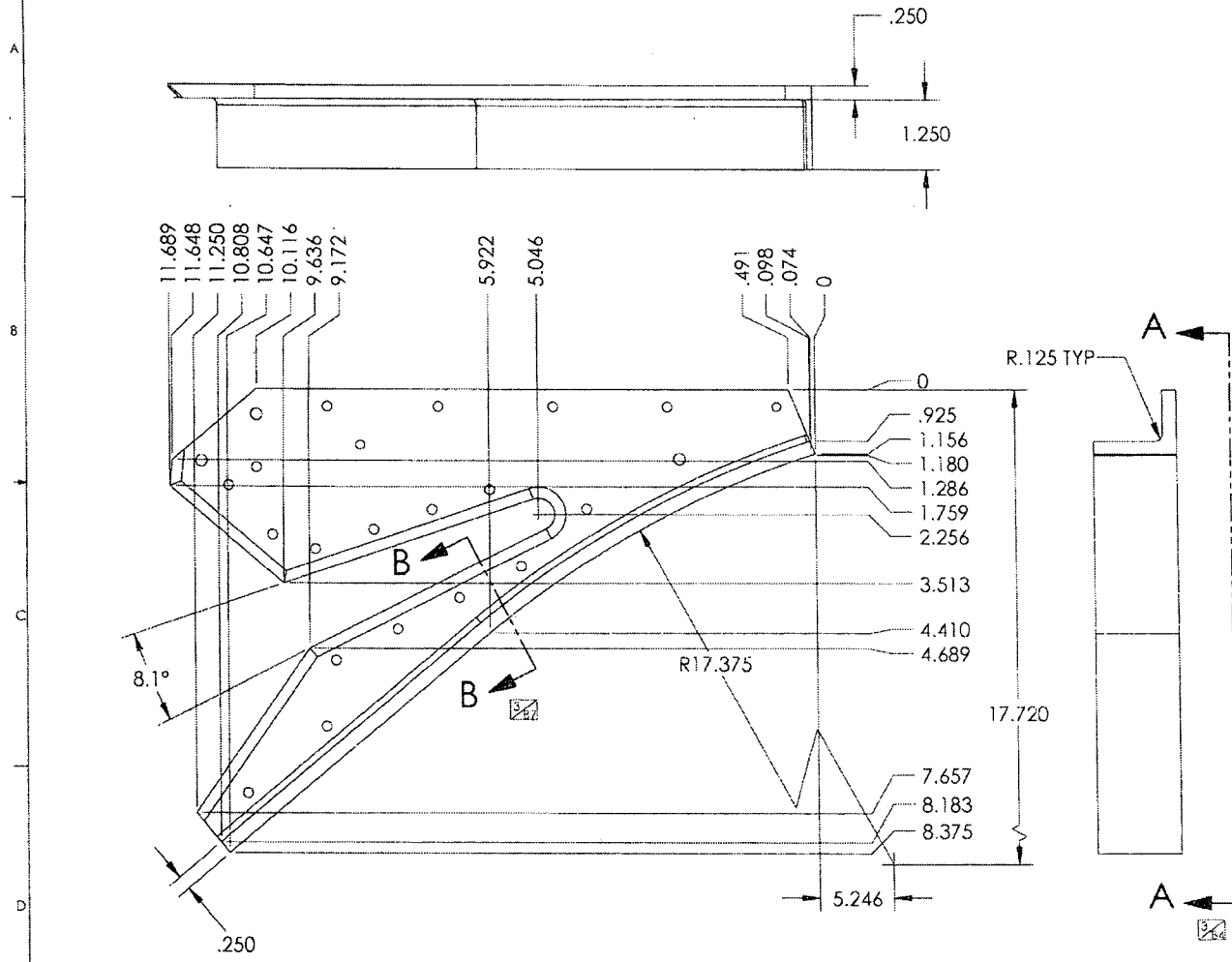


02196, 03724

[illegible]

107683

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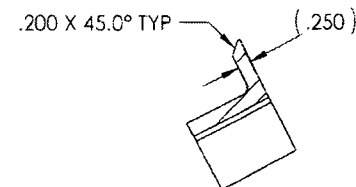
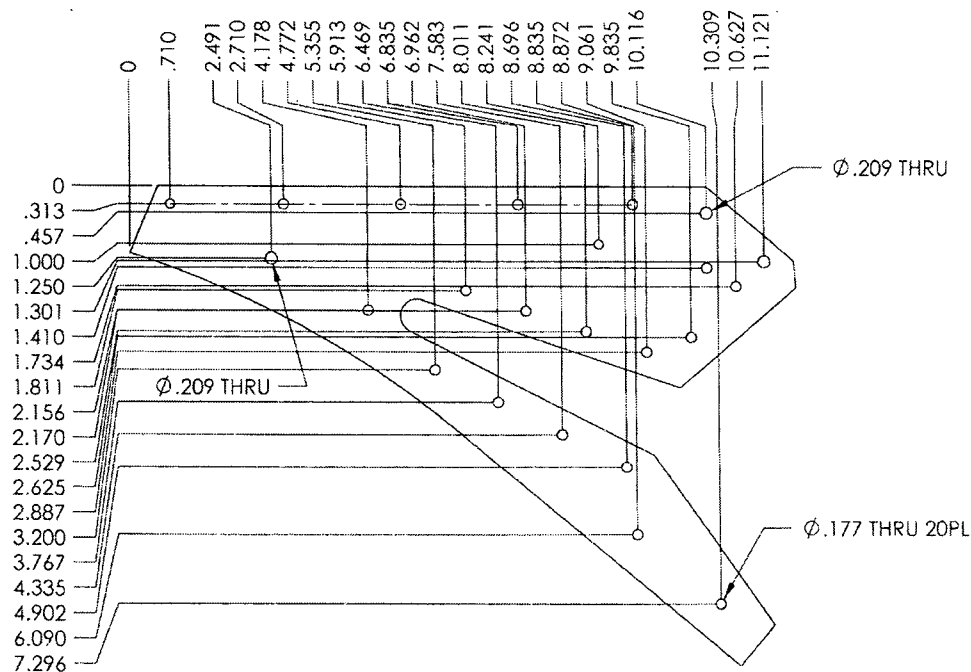


646.3310 SHOWN
646.3311 OPPOSITE

DESIGNED BY: J. H. HART	DATE: 08-20-98	APICAL INDUSTRIES	
DRAWN BY: J. H. HART	DATE: 08-20-98	2608 TEMPLE HEIGHTS DR.	
CHECKED BY: P. HART	DATE: 08-20-98	OCEANSIDE, CA 92056-3512 (760)724-5300	
APPROVED BY: P. HART	DATE: 08-20-98	UPPER CUTTER ASSY	
SHEET: 2 OF 8		SCALE: NONE	REV: N/C

107683

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SECTION B-B

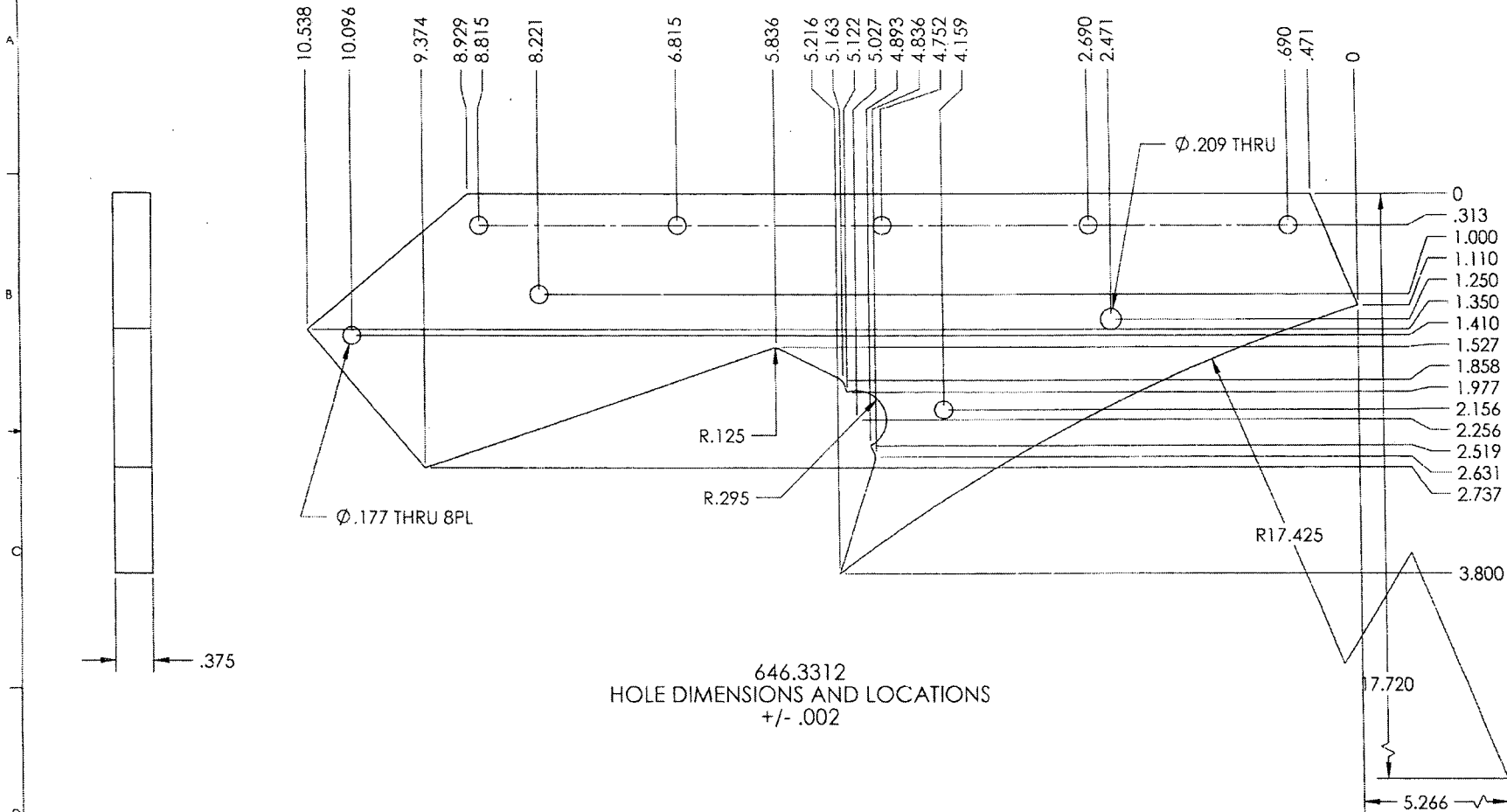
SECTION A-A

ORIGINAL DATE 10/01/01		APICAL INDUSTRIES	
DRAWN BY S. HUPP		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
CHECKED BY P. BRAVO		UPPER CUTTER ASSY	
APPROVED BY [Signature]		SCALE: NONE	SHEET: 3 OF 8
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS FRACTIONS DECIMALS FRACTIONS DECIMALS FRACTIONS DECIMALS		SHEET: 3 OF 8	REV: N/C

107683

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REV.	DESCRIPTION	DATE	APPROVED



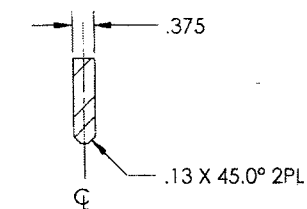
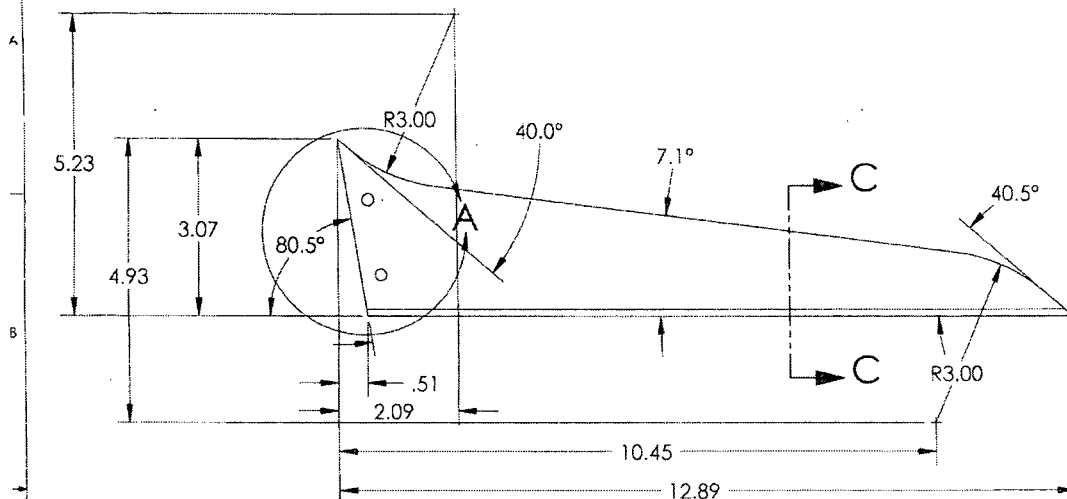
646.3312
HOLE DIMENSIONS AND LOCATIONS
+/- .002

ORIGINAL DATE	10/21/01	DESIGN	000000
DRAWN BY	T. HUP	INCHES	1/8"
DATE	10/21/01	BY	P. BRADY
DRAWING APPROVAL	P. BRADY	DATE	10/21/01
APICAL INDUSTRIES	2608 TEMPLE HEIGHTS DR.	OCEANSIDE, CA. 92056-3512	(760) 724-5300
UPPER CUTTER ASSY			
DATE	10/21/01	DRG NO.	646.3300
BY	T. HUP	DATE	10/21/01
SCALE	NONE	SHEET	4 OF 8

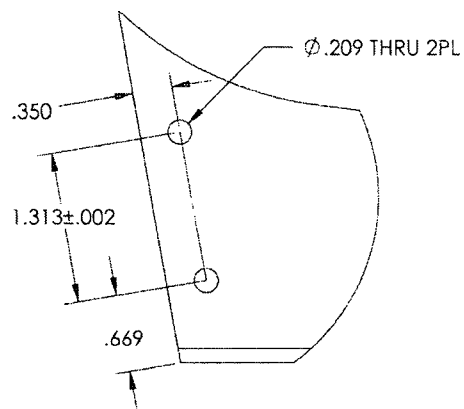
107683

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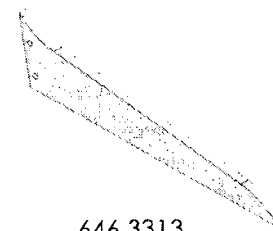
REV	DESCRIPTION	DATE	APPROVED



SECTION C-C



DETAIL A



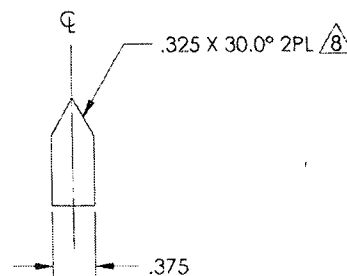
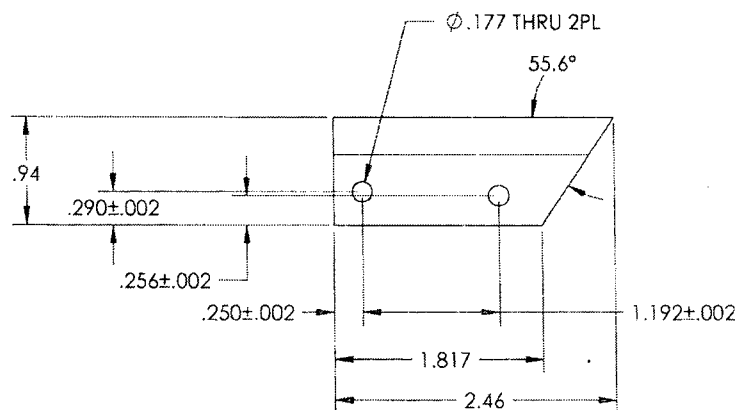
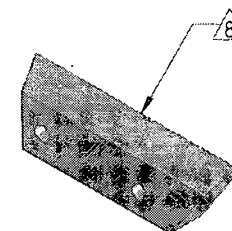
646.3313

APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300	
UPPER CUTTER ASSY	
ORIGINAL DATE: 10/27/11 DRAWN BY: J. S. BROWN S. HUFF: P. BROWN DRAWING APPROVAL: P. BROWN DATE: 11/15/11	SHEET: 5 OF 8
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ± .01 ANGLES ± .5°	SCALE: NONE

107683

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REV	DESCRIPTION	DATE	APPROVED



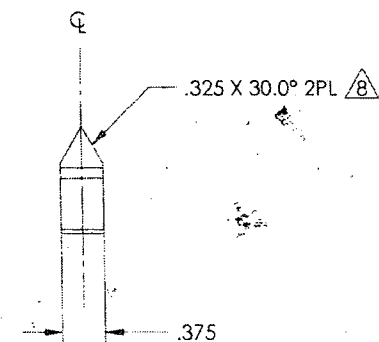
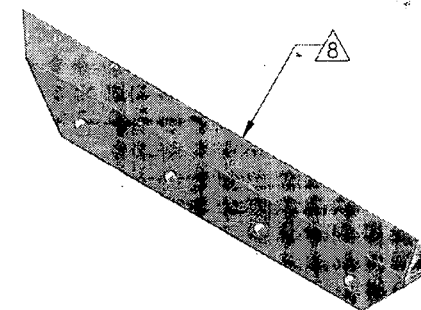
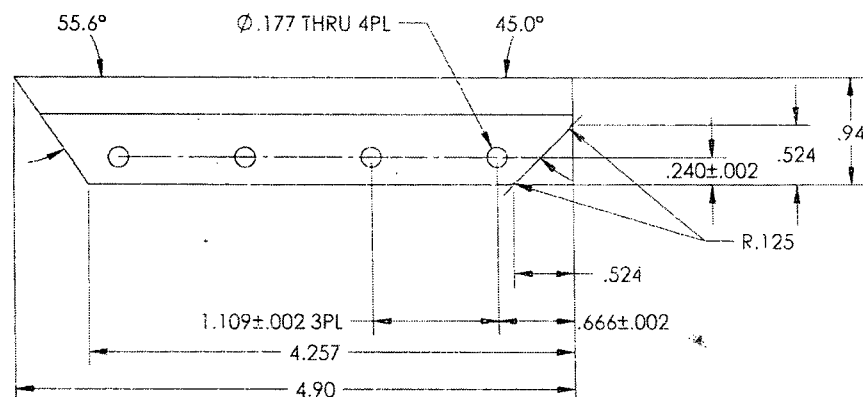
646.3315

OPTIONAL DATE DRAWN BY: GLOVER CHECKED BY: J. HOFF DRAWING APPROVAL BY: B. V. V. V. DATE: 10/28/06 ECO: 10/28/06	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300 UPPER CUTTER ASSY
REVISIONS: 1. REVISED: 10/28/06 TOLERANCES: AS SHOWN SURFACE FINISH: 125 HATCH: 1/8" X 1/8" X 45°	SEE COLOR CODE: 646.3300 DWG NO: 646.3300 SCALE: NONE SHEET: 7 OF 8

107683

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REV	DESCRIPTION	DATE	APPROVED



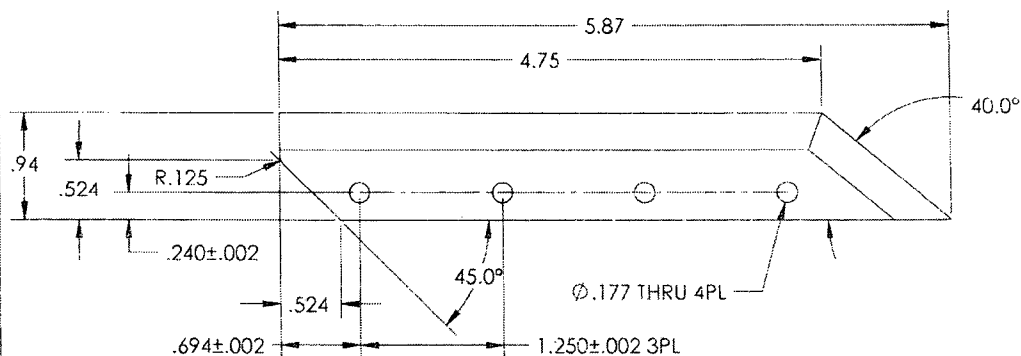
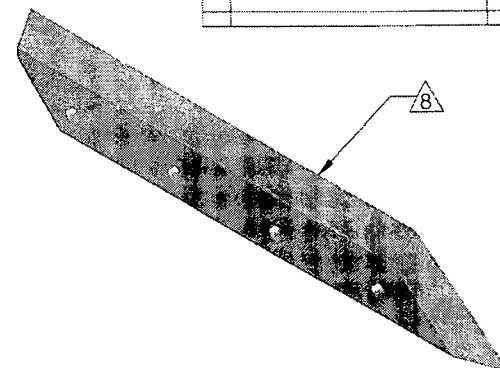
646.3314

DATE: 05/22/08 DRAWN BY: J. K. H. CHECKED BY: P. K. H. DRAWING APPROVAL: P. K. H. COUNTER: 115		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760) 724-5300	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DECIMALS ARE TO .01 FRACTIONS ARE TO 1/32 HOLE SIZE: 1.3		PART CODE: 646.3300 SCALE: NONE	REV: N/C SHEET: 6 OF 8

107683

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REV	DESCRIPTION	DATE	APPROVED



646.3316

OPERATOR DATE UNCL. DA. 191 08-1-08 OPERATOR S. HUFF DRAWING APPROVAL P. BRAND CHECKED BY		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACES DECIMALS ± .01 2 PLACES DECIMALS ± .005 ANGLES ± .5°		SIZE 10-32 CODE B 07M20	DWG. NO. 646.3300
SCALE NONE		SHEET 5 OF 8	REV N/C

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
190086	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number						
PO21635		A2								
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications										
VAC HARDEN										
HARDEN AND TEMPER										
EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results										
HARDNESS		58 - 62 HRC	5	59.0 - 61.0 HRC						
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description								
37	13	646.3015 (21) BLADE REFERENCE: 107339 MATERIAL: A2 (8) 646.3315 BLADE REFERENCE: 107680 MATERIAL: A2 (8) 646.3314 BLADE REFERENCE : 107683 MATERIAL : A2 CONTENANT: 1 BOÎTE DE CARTON								
Operation	Temp. spécifiée Specified Temp	Temps de tremp Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.	LAVAGE		si nécessaire							
2.00 PREPARING	COMPTAGE									
3.00 PREHEAT 1	1200	0:30	VAC			390				
4.00 PREHEAT 2	1500	0:30	VAC			390				

METCOR INC.
560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé
Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
190086	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

1

Operation	Temp. spécifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
5.00 VAC HARDE	1800	1 hrs 30 minutes	VAC		AZOTE	390				
6.00 TEMPER	400+/-10°F	2 hrs	air			651				
7.00 TEMPER 2	400+/-10°F	2 hrs	air			651				
8.00 HARDN INS										
9.00 FINAL INSP							10-16-2013			10-16-2013

COMMENTAIRES / comments

Le traitement thermique a été fait en utilisant des équipements en conformité avec la spécification demandée.
Toutes les opérations de traitement thermique ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés.
Aucun changement ou dérogation n'a été faite par rapport au traitement thermique demandé.
On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

All the heat treatment processing performed on this order was accomplished using heat treatment equipment compliant with the requested heat treatment specification.
All the heat treatment operations were accomplished in accordance with the requested/required heat treatment specification and all required verifications test have been performed and documented.
No unauthorized changes or deviations to required heat treatment specifications or procedures have been performed.
We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

APPROUVÉ par / Approved by:

Isabel



DATE: 2013-10-31

/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client./We certify that all the information on this report is exact and in accordance with the order requirements.